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## **Sustainability & Education - E-Learning Website**

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### **Abstract**

Taking into consideration that sustainability has become one of the crucial aspects of modern development due to scarcity of resources and intense globalization processes; we recognized a need to integrate it into education by development of an e-learning website. Throughout analysis we explained the rational need for education on sustainability since it has a great influence on every aspect of life. Prior, learning goals were introduced as guideline for further explanations. In the next part of the analysis we have defined potential solution based on Bersin's six modes of learning which include: reading, seeing, hearing, watching, doing and teaching. For the benefit of development of our online course it was necessary to clearly set out and explain core tools divided into three groups: informational group, materials group and examination group. Finally, this paper offers a ready-to-implement solution on e-learning sustainability website applicable to any university.

**Keywords:** E-learning, Sustainability, Discussion, Interactivity, Internet, Planning Tools, Software, Website, Organization, University.

### **1. INTRODUCTION**

Today, in the era of technology, internet, and change, e-learning has become a constituent part of university curriculums, a common tool for corporate training, and strategic change. On the other side, sustainable development an issue and challenge of today has an overall aim of meeting the needs of the present without compromising the ability of future generations to meet their needs. Taking into consideration main characteristics of e-learning which can be

described as teaching service provided to an individual that is not physically present brings us to the point where we combine these two issues into one.

In order to understand the issue it is important to primarily explain and define e-learning and sustainable development as two important segments for development of e-learning website. Modern era imposed new standards related to usage of internet and high-tech gadgets where most of students need to adopt in order to engage more efficient processes of learning practices.

Furthermore it is vital to determine how these two issues can be combined and brought into everyday life throughout education. To motivate and engage students in active learning processes calls for the use of student-centered concepts and the making of more interactive virtual learning environments that supports knowledge creation (Uhomoihi, 2006).

For the benefit of overall analysis we will present unique and simple solution (applicable to any university) of an e-learning sustainability course that has aim to introduce students to sustainability issues of today, give them opportunity to research, discuss and contribute to their solving, and to make them capable of applying this solutions to their organizations in the future.

According to the general definition sustainable development can be explained as “the ability to make development sustainable and to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Taking into consideration scarcity of resources, intensity of development and global economic position, sustainability has become one of the crucial factors for further successful development of all planetary activities.

It is possible to segregate three major aims of sustainable development and e-learning practices. First aim capitalizes on strength, prior academic, cultural and personal experiences and modes of an increasingly diverse students group. Second one facilitates effective engagement among sustainability practitioners with students in real and virtual learning environments. Third aim is focused on informed groups and individuals which allows them reflection on the strengths and limitations of sustainability and education (McEwen, 2006).

After presenting all relevant theoretical principles and facts about e-learning in general, we will next focus on our own idea and product as the focal point of the analysis. Moreover, a solution for an e-learning sustainability website that can be utilized by universities as part of their education policy will be developed. This will be done by stressing out the learning goals and levels and by suggesting appropriate solutions for reaching those goals. As a result, this paper will give a comprehensive solution of a website ready for implementation.

## **2. E-LEARNING SUSTAINABILITY WABSITE**

### **2.1. Rationale**

We choose to propose an e-learning solution for course on sustainability. The rationale behind this innovative program of study lies in the fact that education on sustainability is becoming a global trend and development and sustainability challenges in general are of great importance to every aspect of life. Moreover, Universities in BiH do not offer adequate solutions for this particular issue which demands much more attention in terms of research and proposing solutions.

Taking this into account, and having in mind that today's students are computer and digitally literate, the idea is to propose a solution for an e-learning sustainability website that would combine relevant materials, technology and internet resources to teach what sustainability and development really is, what are the current trends, and get students involved into case studies and projects that could benefit to the university and society in general.

### **2.1. Learning Goals**

The goal of any course should be to transfer knowledge to the students and provide a relevant knowledge basis for the future. Having in mind that an e-learning course is strengthened and supported by technology; the identified learning goals as follows:

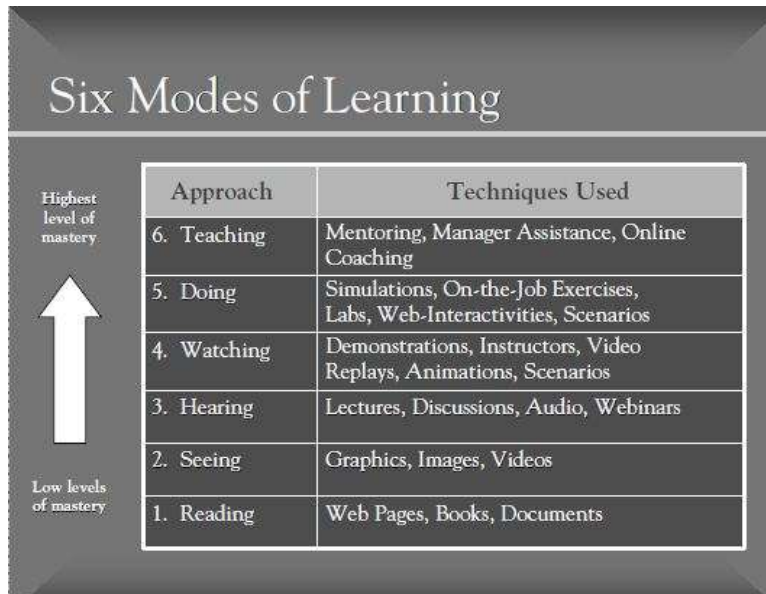
Teach people about relevant sustainability topics and challenges facing today's society;

Train them on how to apply SD solutions ad concepts in practice;

With help of technology and internet, make the website as place where they will be thought about SD, be informed about current issues, and have appropriate database for research.

## 2.2. Solution

In order to accomplish the goals set in previous section, it is necessary to combine and integrate different mediums and use appropriate instructional principles and techniques. Moreover, the website needs to be designed in such a way to be appealing to students (in terms of aesthetics and content), it needs to fulfill some basic requirements of a good website, and it needs to make people learn and understand the topic. Design of an e-learning website is highly dependent on the chosen learning strategy. Figure 1 (Bersin, 2004) displays six modes



of learning, or a hierarchy of learning stages and 'mastery'. It can be noticed that achieving the highest mastery level is a multi-step process and multi-technique approach highly dependent on technology and internet support needs to be used. Some examples of learning strategies include: storytelling, sequences, competency-basis, criterion-referencing, evaluation, co-operation, case studies, discovery or constructivism, role playing, simulation, games, experience, laboratory,

etc. **Figure 1** – Six Modes of Learning

(McIntosh, 2008). In addition, it is necessary to keep in mind that the most effective learning occurs when learners are actively engaged and when level of interaction is high. Taking all this into consideration and in order to achieve learning goals and high level of mastery, the web site design will be explained through six modes of learning (Bersin, op.cit.):

.Reading: In general, the easiest way to deliver a lesson is to give people things to read. In web form, however reading is less valuable because people will not and cannot read long texts on the web. Having in mind that sustainability should not be a theoretical subject, the web site should provide well-structured materials, balance it with image content, and give instructions in outline forms. Moreover, it should provide the download option for all of the documents and books.

2.Seeing: As stated previously, heavy texts are not suitable for this type of websites. It is necessary to enrich text by adding diagrams, photographs, and images. This is important in the SD terms, because students need to conceptualize, visualize and be aware of the different concepts and issues. For this purpose, website will offer assignments, presentations and case studies enriched by photos on related topics.

4.Hearing & 4. Watching: Next set of techniques includes sound, motion, and demonstrations. These techniques would include instructor lectures, demonstrations, videos of real-world examples, and scenarios. Besides hearing lectures, students will be offered with videos on sustainability issues and relevant case studies.

5.Doing: In everyday life, learning by doing or experiential learning creates the highest level of understanding, context, and retention. That is why e-learning should strive to create experiential activities. The biggest trend in experiential learning in web-based instruction is simulation (Bersin, op.cit.). Simulations are a special form of web-based training that put the learner in a real-world situation. For the purpose of learning sustainability, students will be able to select modules and topics according to their interests, for example sustainable development in relation with communities, climate change, politics, governance, etc. After choosing the area of interest, students will get to use their knowledge of the SD framework to apply it to an actual business, community or other project and produce a final project/work. Moreover, website will offer simulation exercises, workshops, and will inform students about occasional field trips.

6.Teaching: Certainly the most valuable way to master a subject is to teach it. With this idea in mind, students would be required to present their area of interest and show others what/how they approached a particular issue and what solutions they applied. Due to the nature of the topic, students will be required to employ ABCD analysis as follows (NBIS, 2008):

- A. Awareness - What they know about sustainability and why it matters for the chosen topic?
- B. Baseline Mapping - conduct sustainability 'gap analysis' related to the chosen organization/issue.
- C. Clear and Compelling Vision/ Creative Solutions - brainstorm potential solutions to the issues highlighted in the baseline analysis.
- D. Down to action - prioritize the measures that lead to offered solutions and sustainability. Develop a plan for implementation.

### 2.3. Tools & Design

In order to develop online course we would use several core tools divided into three groups:

1. Informational group – our website would be the centre of the course. Information would be available there and we would use HTML (hypertext mark-up language) in order to provide quick, easy and concrete information.

2. Materials group – here, we refer to the section in which we would provide study material to our students. In the beginning, two ways would be used:

- Live – In order to connect with our students and to have “personal touch” there must have live classes. So during the semester, there would be organized three to four live conferences in order to have mutual exchange of information between students and professors. On line lectures, discussions and advices from professors would be done through Microsoft Office Live Meeting program.
- Literature – In order to provide our student with material we would use following tools:
  - PowerPoint – Lectures would be delivered to students through e-mails or it could be downloaded directly from website.
  - PDF – Lectures that would support PowerPoint presentations, additional reading, homework and all other course related material would be delivered to students in PDF formats. As already said, we would use PDF in order to deliver homework material. We would have option to deliver scanned bills or invoices to our students, so they could feel what accounting is.
  - Windows Media Player – Lectures could be recorded on DVDs, practical things could be in video modes and all of this could be delivered to students. Ordinary video player such as Windows Media Player could be used in order to watch material
  - Excel – Numerical data would be provided in excel form.

3. Research studies – Since sustainability is an ongoing issue, debated each day, online research studies would be provided for students. The separate page would be consisted put of three parts:

News – This section would provide latest news and actions on sustainability, summits, meeting, conferences and all other important events that are recently all will be done in the future. Additionally, it would provide articles on sustainability and several other reports done by individuals from different parts of the world.

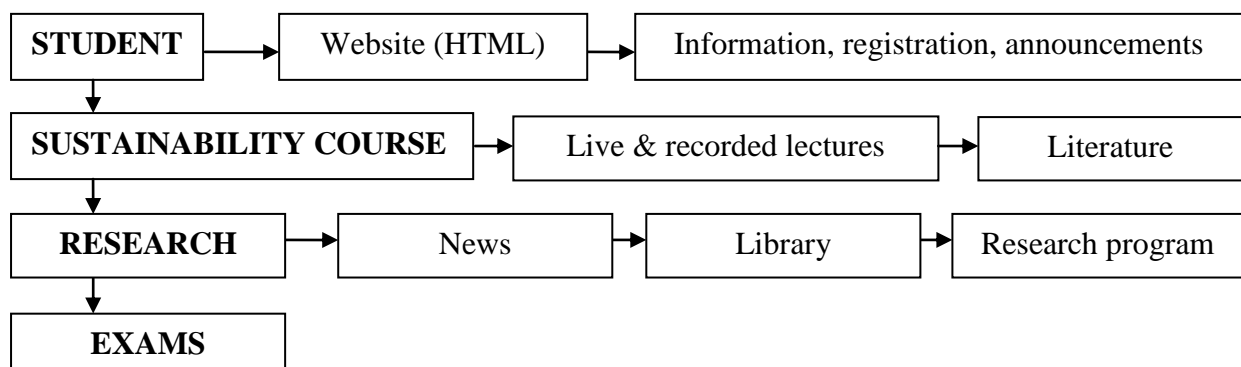
Library – Huge collection of online books and published papers has to be there in order for students to be able to easily access information from different topics related to sustainability (economical, environmental, social and other categories).

Research programs – As main program there would be Microsoft Dynamics (Microsoft, 2009) that is customized for sustainable development process. This program could be used online while two or more people could be connected in separate room. In that “room” they would have communication ability and could do researches much efficiently. Another advantage for this usage would be that mentor could also be “on the other side” and give instructions and guidelines during the research process. Additionally, students could chat and share knowledge and experience with other students and work on several other projects all around the world.

4. Examination group – All types of examination (finals, midterms, quizzes and homework) would be done online. To examine students we would use:

- Microsoft Word – This tool would be used for theoretical part of examination.

**Figure 2 – Course Matrix**



## 2.4. Technical Issues

In order to provide high quality education, we should be aware of several technical issues that we could face while providing this type of service. Among these issues we identify three most common:

- Do our students have adequate equipment to follow our education?
- Is our course, materials and information easily accessible?
- Is our Technical Service good and how people with problems can contact them?

So, in order to develop e-learning, organization has to take into consideration many things that could affect the process. From the questions we could see that organization should know if students have compatible equipment in order to apply for the course. Then they examine their self in order to see are they good enough to provide such service. Do they have enough

resource and capabilities? Even if they are strong, they should always try to find ways for improvement.

### 3. CONCLUSION

After taking everything into consideration, it can be concluded that e-learning is surely becoming the education tool of today. The benefits and opportunities this kind of learning provides for the students/users are unquestionable. When it comes to the solution proposed in this paper, if properly designed, e-learning sustainability website can not only bring this topic closer to the students, but can also make them capable of proposing and creating solutions for sustainability issues of today's.

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